

LISTING OF THE CLAIMS

Please **AMEND** claims 21, 29, 31, and 33.

This listing of claims will replace all prior versions, and listings, of claims in the application:

1-20. (Cancelled)

21. (Currently Amended) A thermal protection system, comprising:

an insulating core comprising carbon foam ~~having a thermal conductivity below about 1 W/m[°]K~~; and

~~an oxidation inhibitor incorporated into said carbon foam antioxidant protective layer over a surface of said insulating core; and~~

a structural portion on a surface of said insulating core.

22. (Previously Presented) The thermal protection system of claim 21, wherein the carbon foam is coal-based carbon foam.

23. (Previously Presented) The thermal protection system of claim 21, wherein the carbon foam has a density ranging from about 0.1 g/cc to about 0.8 g/cc.

24. (Previously Presented) The thermal protection system of claim 21, wherein the carbon foam has a compressive strength up to about 6,000 psi.

25. (Previously Presented) The thermal protection system of claim 21, wherein the carbon foam is carbonized carbon foam.

26. (Previously Presented) The thermal protection system of claim 21, wherein the carbon foam has been impregnated with at least one selected from the group consisting of petroleum pitch, epoxy resins, and polymers.

27. (Previously Presented) The thermal protection system of claim 21, wherein the carbon foam comprises an inert solid material.

28. (Previously Presented) The thermal protection system of claim 27, wherein the inert solid material comprises ceramic particles.

29. (Currently Amended) The thermal protection system of claim 21, wherein the oxidation inhibitor antioxidant protective layer comprises a coating of a metal.

30. (Previously Presented) The thermal protection system of claim 29, wherein the metal is selected from the group consisting of aluminum and inconel.

31. (Currently Amended) The thermal protection system of claim 21, wherein the oxidation inhibitor antioxidant protective layer comprises a coating of a glass-forming compound.

32. (Previously Presented) The thermal protection system of claim 31, wherein the glass-forming compound is selected from the group consisting of a metal halide, metal carbide, and metal nitride.

33. (Currently Amended) The thermal protection system of claim 21, wherein the further comprising an antioxidant protective layer on a surface of is incorporated into the carbon foam.

34. (Previously Presented) The thermal protection system of claim 21, wherein a surface of the insulating core is positioned over a structure.